

REMARKS

This paper is in response to the official action of June 8, 2005. Reconsideration is requested.

The applicant has carefully reviewed and considered the official action and the references cited therein. Entry of the foregoing amendments is respectfully requested. Claims 1 and 2 have been amended, and new claims 6-14 have been added. Claims 1-14 are under consideration.

CLAIM REJECTIONS – 35 U.S.C. §102

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being unpatentable over Wu (2002/0115270).

Amended claim 1 recites a step of forming a side wall oxidation film at the side wall of a trench by performing an oxidation process at a temperature for extremely prohibiting ions, which are implanted to control the threshold voltage, from diffusing to the device isolation region. Wu recites a step of forming a side wall oxidation film at the side wall of the trench. However, Wu does not teach or suggest performing an oxidation process at a temperature for extremely prohibiting ions, which are implanted to control the threshold voltage, from diffusing to the device isolation region.

Also, the present claims recite a step of performing an ion implantation to compensate for ions for controlling the threshold voltage, which are diffused from the active region to the side wall oxidation film by the oxidation process. However, Wu does not teach or suggest the step of performing an ion implantation to compensate for ions for controlling the threshold voltage. The ion implantation of Wu is performed to form a field-encroachment region.

On the other hand, Wu discloses a step of forming a buffer spacers on a sidewall of a patterned multilayer masking structure which is formed to define an isolation region. The

buffer spacers are an essential component to achieve a purpose of Wu. However, the present invention not need the buffer spacers to achieve the purpose of the present invention.

CLAIM REJECTIONS – 35 U.S.C. §103

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0115270) taken with Oda et al (2002/0086498) (claims 2 and 4) or with Hong U.S. 6,030,882 (claim 3)

Claims 2-4 depend from claim 1 and are therefore in condition for allowance with claim 1.

New claims 6-14 recite a step of sequentially forming a gate oxide film, a polysilicon film, and a pad nitride film on the semiconductor substrate; and forming a trench to define an active region and a device isolation region by sequentially etching the given region of the pad nitride film, the polysilicon film, the gate oxide film and the semiconductor substrate of the device isolation region. Wu does not teach or suggest the step of sequentially forming a gate oxide film, a polysilicon film, and a pad nitride film on the semiconductor substrate; and forming a trench to define an active region and a device isolation region by sequentially etching the given region of the pad nitride film, the polysilicon film, the gate oxide film and the semiconductor substrate of the device isolation region.

Therefore, the applicant believes that the amended claim 1 is patentable over the cited references and claims 2-5 dependent on the base claim 1 are in condition for allowance. Also, the applicant believes that the new claim 6 is patentable over the cited references and claims 7-14 depending on the base claim 6 are in condition for allowance.

Should the examiner wish to discuss the foregoing or any matter of form in an effort to advance this application toward allowance, he is urged to telephone the undersigned at the indicated number.

Respectfully submitted,

MARSHALL, GERSTEIN & BORUN LLP

By: 

James P. Zeller

Reg. No. 28,491

Attorneys for Applicant

September 1, 2005

6300 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606-6357
(312) 474-6300